the *Ætiology of Enteric Fever*, *Mittheilungen aus dem Gesundheitsamte*, B. ii, Berlin, 1884. ¹⁸ *Untersuchungen über den Bacillus des Abdominaltyphus*, *Inaugural Dissertation*, Berlin, 1881. ¹⁹ *Loc. cit.*, p. 230. ²⁰ *Loc. cit.*, p. 231. ²¹ *Dublin Journal of Medical Science*, vol. ix, No. 41, third series, May, 1875, p. 399. ²² *Ibid.*, vol. lxxiii, No. 122, third series, February, 1882, p. 131. ²³ *Manual of Bacteriology*, Edinburgh and London, Young J. Pentland, 1897, pp. 298. ²⁴ *Loc. cit.*, p. 312.

A FATAL CASE OF THYROIDECTOMY.

By F. T. PAUL, F.R.C.S.,

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A CONSIDERABLE interest attaches to a certain remarkable train of symptoms liable to supervene upon operations on the thyroid gland. With me these have occurred in cases in which the operation had been completed in the most satisfactory manner, and in which the wounds have been perfectly healthy, so there can be no doubt that the symptoms were due to a disturbance of the gland, and were not incidental to the wound. When the first case occurred, which was the one ending fatally, I had not seen anything of the kind published, and formed my own conclusions independently. Since then I have had other cases, and some have been published by Mr. Victor Horsley and Dr. Rodocanachi, from all of which it appears clear that the symptoms are due to the absorption of thyroid secretion through the wound.

The case is shortly as follows: A.M., aged 15, a slim, tall girl, had a rather large parenchymatous goitre. She was a native of Liverpool, but her father was a south-countryman, and an aunt has a goitre. The tumour was soft, but not cystic, and did not pulsate. It involved both lobes about equally. The heart was excitable, the impulse diffused, and there was a soft systolic *bruit* at the apex. The pulse was 104. There was dyspnoea on exertion. She was said to be a good useful girl at home, and, though of the thin nervous type, appeared to be quite strong enough to bear a serious operation. On December 3rd I removed the left lobe and isthmus of the gland. The operation was perfectly straightforward, and the patient left the theatre in excellent condition. All details as to dressings, drainage, etc., were carried out in the usual manner. During the night she became restless and uneasy, an irritable cough set in with a mucous rattle in the throat. The temperature was 100°, the pulse 130, and the respirations 26 and laboured. On the morning of December 4th the same condition was present; the wound was dressed and appeared perfectly healthy. In the afternoon the temperature rose to 103°, and fearing that the ether inhalation had set up bronchitis, steam and eucalyptus vapour were used, with stimulants and extra nourishment. Subsequently the restlessness, anxiety, distressed breathing, and frequency of the pulse increased, and the temperature was generally between 101° and 102° F. There was no further evidence of bronchitis. She took nourishment and stimulants well, but notwithstanding the most devoted care on the part of my house-surgeon, Dr. Badger, and the sister of the ward, the Graves's disease-like symptoms increased in severity, and the pulse became uncountable, and she died on December 6th, just two and a-half days after the operation. Small doses of morphine were given a few times, and on each occasion were followed by a little sleep. Probably, as observed by Dr. Rodocanachi, it would have been better to have used this drug more freely. A necropsy was made. In regard to the wound, there was a want of healing action, and the fluid contained in it was of a very watery character, but there was nothing suggestive of septic changes. The divided surface of the thyroid looked quite fresh, as though repair had not yet commenced. The bases of the lungs were congested, and there was a little tenacious mucus in some of the tubes, but no general bronchitis. The heart and all the other internal organs were healthy, except the liver, which was very fatty and perfectly nodular throughout from idiopathic cirrhosis. At first I thought this remarkable liver might be sufficient to account for the death of the patient, but soon dismissed the idea, for on reviewing the whole circumstances I could come to no other conclusion than that the symptoms were due to the absorption of an excessive amount of thyroid secretion, but how this came about, and what I could do to prevent it, did not at once occur to me.

A fortnight later we had another object lesson. A pale,

sallow, nervous woman, aged 43, with rather chronic Graves's disease, was sent to me for operation by Dr. Abram, as she had undergone no improvement after a course of medical treatment. The thyroid was only moderately enlarged, and exophthalmos, though present, was not marked; otherwise the symptoms were usual.

On January 18th, the patient being in fairly good condition, I removed the right lobe of the gland without difficulty, and with practically no loss of blood; in fact, the operation could not apparently have been more satisfactory. For several hours the patient was very comfortable; but during the night she became restless with quickened respiration. The temperature was 101°, the pulse 128. Next morning she was a little better, and on changing the dressings the wound looked well. Later in the day the restlessness, anxiety, and irritable cough increased, and the pulse and respiration became more frequent. The ward sister was already anticipating a repetition of the last case, and it seemed to me only too probable that her fears were well grounded. I again removed the dressings. There was now no blood stain, but the wound was discharging freely a clear watery fluid, and on cutting the stitches it was seen to be filled with the same. I imagined that this fluid, or at any rate a considerable part of it, was derived from the thyroid, and wanted Dr. Abram to test it for me; but it appears that there is no chemical means of recognising thyroid secretion. However, acting on the belief that the patient was suffering from a sort of traumatic thyroidism, I left the wound open, but packed it to the bottom with dry salicylic wool. The opening up of the wound was followed by a marked improvement, but only for a time. During the night—the second night after the operation—she became worse than ever; the temperature was 104.8°, the pulse almost uncountable, the respirations 36. I removed the plug of wool, and found it saturated with watery discharge, replaced it with dry wool, and left instructions that it was to be changed as often as it became at all moist, which proved to be about every two hours. The following day, January 21st, she was better in every way. On January 22nd the temperature was only just above normal, and continued so until convalescence was established, but the pulse and respiration went down more gradually. We had no further anxiety about her.

These two cases were the twenty-fifth and twenty-sixth operated on for thyroid enlargements, and I have done about ten since. None of the others were at any time dangerously ill, but I can see now that a few of them suffered from the same condition in a minor degree, and at about the same time, I therefore set myself to try and discover what could be the reason that an operation which at first appeared so safe should all at once have become so uncertain. Upon looking back, this explanation occurred to me. In the earlier operations I handled the gland very little, tying the vessels on each side before dividing them, and ligaturing the isthmus before separating the lobe. The operations then were longer, and more blood was lost. Indeed, in Graves's disease the hæmorrhage was sometimes alarming, for in these cases the blood wells out of the gland as if it were a saturated sponge. Gradually I came to grasp the gland firmly in the left hand until the thyroid arteries were secured, and in this way found that all serious bleeding was readily avoided. About the same time I gave up ligaturing the isthmus, as it appeared unnecessary. Now in these two changes it was probable that the danger lay. From barely handling the gland it had come to be firmly squeezed during most of the operation, and from securely tying the isthmus it had come to be cut straight across—and it must be remembered that in enlarged thyroids the isthmus is frequently upwards of an inch in diameter. I take it that squeezing the gland may help to liberate secretion contained in the follicles, and that the same may escape into the wound from the lymphatics in the divided capsule round the severed isthmus, the lymphatics being the normal channel for absorption of the secretion. If the condition from which these patients suffered is to be regarded as thyroidism, and not, as Mr. Horsley has said, athyroidism, then every possible source of contamination of the wound with thyroid secretion should be avoided.

I cannot recommend that the safe grasp of the gland should be altogether given up; but I believe it may be rendered harm-

less by first ligaturing the isthmus, and exercising caution in the amount of compression. My rule now is to ligature the isthmus early in the operation, handle the gland carefully, and at once, on the barest suggestion of the train of symptoms referred to, to open up the wound, irrigate it, and fill with dry, aseptic, absorbent wool. It might be better to begin by severing the isthmus, and then remove the lobe from within outwards; but probably if one only has in mind the danger of forcing an excess of the secretion into the blood, or allowing it to escape into a fresh wound, there is no great difficulty in avoiding it. Hitherto one has not recognised the danger, and, if I have somewhat exceeded the space ordinarily allotted for the narration of a case, it is because it appears to me very important that all who undertake operations on the thyroid for exophthalmic or soft parenchymatous goitres should fully recognise this insidious and fatal complication.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

ERYTHROL TETRANITRATE IN ANGINA.

PROFESSOR BRADBURY, of Cambridge, published in the BRITISH MEDICAL JOURNAL, April 10th, 1897, some notes of a case of angina pectoris, treated by trinitrine, and subsequently by erythrol tetranitrate. Having myself watched the case from its inception, a further report may prove interesting. To avert the paroxysms it became necessary to administer the remedy in steadily increasing doses. The patient takes now half a drachm in the day, that is, 6 grains at 6 A.M., to enable him to dress at 8 A.M.; six more at 10 A.M., 2, 6, and 9 P.M., together with $\frac{1}{2}$ gr. of trinitrine at 10.30 P.M. to enable him to ascend the stairs and get to bed. He is in perfect health, barring the seizures, which are always at hand, if a tabloid chance to be omitted. No physiological effects whatever have at any time been manifested. As I apprehend that these doses of erythrol are unwontedly large, possibly unprecedentedly, the fact may be worthy of record.

It is unfortunate that the preparation of this remedy is so costly, rendering it, as chemists admit, quite prohibitive to the poor.

Hastings.

EDWARD GARRAWAY.

DISLOCATION OF THE UNGUAL PHALANX.

THE case of the above dislocation described by Dr. Bays, recalls to my mind an instance which came under my notice and treatment a few years ago. The circumstances attending it were almost identical with those in Dr. Bays's case—a blow from a cricket ball falling upon the extremity of the extended finger; and the displacement was similar. The third or fourth digit was the one affected in my case—I forget which. The injury was a fortnight old when the patient came to me, having received treatment from a chemist who failed to recognise the dislocation; it was, however, easily reduced by traction and pressure. I am inclined to think that the injury is commoner than surgical writers would lead us to infer. Compound dislocation is certainly not rare.

HAROLD DOWNES, L.R.C.P., L.R.C.S.E.

Burnham, Maidenhead.

I CAN record a similar case which occurred about 18 months ago. The only difference is that in my case the base of the unguis phalanx rested on the palmar surface of the head of the second phalanx. The dislocation was caused by a blow on the end of the middle finger of the right hand. It was easily reduced, and gave little further trouble. It is possible that the injury may be of fairly frequent occurrence, but thought so trivial that it may not have been reported.

Rochdale.

D. RICHMOND, M.B., C.M.

SIX or seven weeks before I saw her, a patient had tripped in the street, and struck the points of her right fingers forcibly against a wall as she fell forwards. The proximal end of the terminal phalanx of the middle finger rested on the dorsal aspect of the head of the second phalanx; but there was no

rotation or lateral displacement of the shaft of the bone. Reduction was a matter of some difficulty, but to retain it in its proper position was of greater difficulty still. The splints could not be abandoned for some weeks. After it was possible to do so the bones retained their normal position, but the movement of the joint could not be fully restored, a considerable degree of ankylosis supervening.

Ash, Dover.

E. A. C. BAYLOR, M.D.

ON October 15th, 1896, some patients of the asylum were employed polishing the floors with large rubbers. One—a heavy woman—slipped and fell with her arm beneath her. In falling the left thumb was gripped by the iron joint of the rubber of the patient next her. The others, hoping to aid, pulled the rubber away. Her arm being fixed by the weight of her body, this resulted in the base of the unguis phalanx being forced on to the posterior surface of the head of the proximal phalanx. There was no external laceration, and the most careful examination failed to elicit symptoms of fracture. Having failed to reduce it, I had it fomented till the evening. In the evening I succeeded in reducing the dislocation and applied splints. The joint was swollen and tender for a time, but soon returned to its normal condition.

DAVID BLAIR, M.A., M.B., C.M.

County Asylum, Lancaster.

ASEPTIC VACCINATION.

DR. RALPH W. LEFTWICH's note in the BRITISH MEDICAL JOURNAL of December 11th on aseptic vaccination reminds me that some years ago I began to vaccinate aseptically, but in a different way from the plan described by him. I first sterilised the child's arm for some distance around the vaccine site, and, after introducing the lymph, covered the skin over and around the abrasions with hot boric gelatine. This rapidly set into a transparent film, through which the progress of the vaccine vesicles could be observed.

On the eighth day the film was quite easily peeled off. The vesicles were then dusted over with boric acid powder, after which another, and in this case thicker, layer of the gelatine was applied, and while setting was dabbed with cotton wool in the manner practised by dermatologists. The treatment was uniformly and eminently satisfactory.

On removing the first film on the eighth day the vesicles were beautifully developed, without the least trace of the surrounding zone of redness which has hitherto, I think erroneously, been supposed to be a normal accompaniment of vaccination, while in the majority of cases the second application remained on until the scab was ready to drop off. Occasionally the contents of the vesicles oozed through the film of gelatine, necessitating a second dusting of boric powder. The plan prevented the introduction of outside septic matter, and very largely reduced the irritability and feverishness commonly associated with the course of vaccination.¹

Latterly I have seldom had occasion to practise vaccination, but Dr. Leftwich's letter induced me to publish my experience. As he truly remarks, nearly all the evils incidental to vaccination are caused by infection of the vaccine vesicles by septic matter, and are to a very great extent preventable. In view of the very great outcry against compulsory vaccination I would respectfully suggest to the Local Government Board the expediency of recommending the adoption of the plan I have described, or of some other equally simple method of excluding sepsis in the performance of this little operation. The boric gelatine was made for me by Mr. Eardley, Glossop Road, Sheffield.

SINCLAIR WHITE, M.D.

Honorary Surgeon, Sheffield Royal Hospital.

It has always appeared to me not less important to attend to aseptic details in performing a vaccination than in doing any other surgical operation involving a lesion of the skin. For the last three years the following has been my regular practice:

I first cleanse the outer part of the upper arm with a weak antiseptic solution (1 in 3,000 perchloride of mercury), and

¹ The boric gelatine is made by adding a drachm of boric acid to an ounce of gelatine, liquefied by heat. It is very cheap, and can be easily made ready for use by immersing the pot containing it in boiling water for a few minutes.